Application Schema and Feature Encoding Focus Group (ASFE FG)

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ASFE FG PURPOSE

- **The ASFE Focus Group serves as a technical advisory group to the GWG and as a coordinating body for the GEOINT Community to address all aspects of Application Schemas and Feature Encoding of GEOINT standards**

- **GEOINT Standard is a documented agreement containing technical specifications or other precise criteria to be used consistently as rules, guidelines, or definitions of characteristics to ensure that materials, products, processes, or services are fit for the analysis and visual representation of security-related activities on the earth**

ASFE FG SCOPE

- **The ASFE Focus Group is responsible for the standardization of GEOINT relating to data structures, exchange and storage of geospatial intelligence. This may include data format, feature and attribute coding schemes, exchange media, administrative procedures, geographic feature geometry and feature attribution information and other geographic information.**

ASFE – Types of Standards

- GEOINT Structure Implementation Profile (GSIP)
  - NSG Feature Data Dictionary (NFDD)
  - NSG Entity Catalog (NEC)
  - NSG Application Schema (NAS)
  - Data Content Specifications (DCS)
  - Extraction Guide (EG)
  - Platform Specific Models

GSIP: An interdependent set of Profiles

Defines the methods for specifying & encoding GEOINT in the NSG

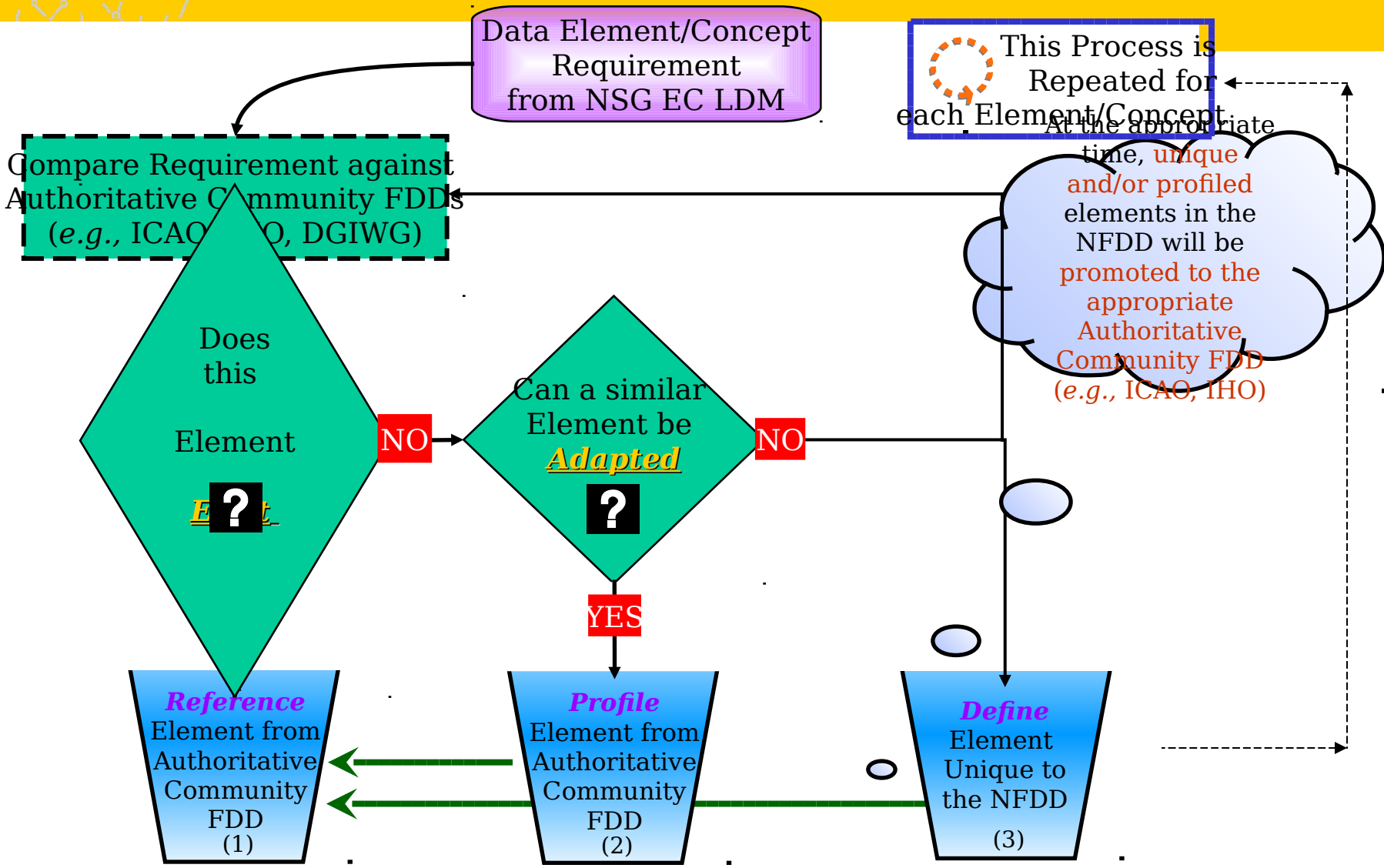
- **NSG Entity Catalog (NEC) / Feature Data Dictionary (NFDD)**
  - Specify the semantic content (data model & data element dictionary)
- **NSG Application Schema (NAS)**
  - Specifies the *Platform Independent Model*
  - Integrates conceptual schemas from ISO 191xx standards for entity modeling
    - *E.g.*, features, events, names and coverages (grids, rasters, TINs)
- **Data Content Specifications (DCS)** and **Extraction Guides (EG)**
  - Determines *Service Level Agreements* for content creation/promulgation
- Reference **Platform Specific Models** supporting:
  - Web Services (*e.g.*, GML & KML schemas)
  - GKB (relational schema)
  - Shapefiles (legacy mechanism)

Draws on ISO conceptual (structure) schemas *and* geo-domain content standards, specifications and profiles

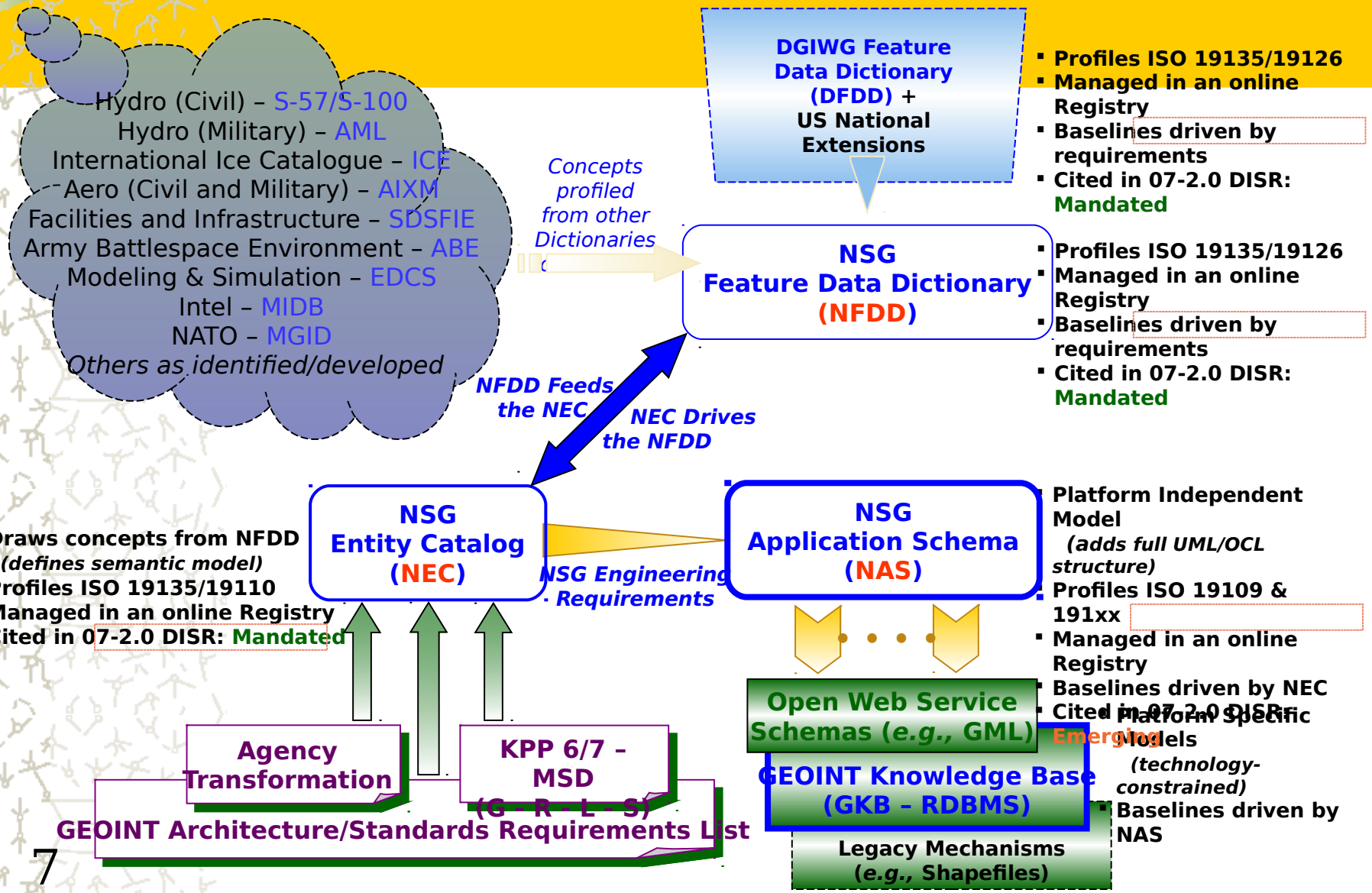
- Military: DGIWG (NATO), MIDB, JMCDM, …
- Civilian: IHO, ICAO/Eurocontrol/FAA, WMO, …

So many to chose from, *and integrate*!

NFDD Development Process


Data Element/Concept Requirement from NSG EC LDM
This Process is Repeated for each Element/Concept
Compare Requirement against Authoritative Community FDDs (e.g., ICAO, IHO, DGIWG)
At the appropriate time, unique and/or profiled elements in the NFDD will be promoted to the appropriate Authoritative Community FDD (e.g., ICAO, IHO)
Does this Element Exist ?
NO
Can a similar Element be Adapted ?
NO
YES
Reference Element from Authoritative Community FDD (1)
Profile Element from Authoritative Community FDD (2)
Define Element Unique to the NFDD (3)

Concepts Flow: into the EC


Hydro (Civil) – S-57/S-100
Hydro (Military) – AML
International Ice Catalogue – ICE
Aero (Civil and Military) – AIXM
Facilities and Infrastructure – SDSFIE
Army Battlespace Environment – ABE
Modeling & Simulation – EDCS
Intel – MIDB
NATO – MGID
Others as identified/developed
Concepts profiled from other Dictionaries
DGIWG Feature Data Dictionary (DFDD) + US National Extensions
Profiles ISO 19135/19126
Managed in an online Registry
Baselines driven by requirements
Cited in 07-2.0 DISR: Mandated
NSG Feature Data Dictionary (NFDD)
Profiles ISO 19135/19126
Managed in an online Registry
Baselines driven by requirements
Cited in 07-2.0 DISR: Mandated
NFDD Feeds the NEC
NEC Drives the NFDD
NSG Entity Catalog (NEC)
Draws concepts from NFDD (defines semantic model)
Profiles ISO 19135/19110
Managed in an online Registry
Cited in 07-2.0 DISR: Mandated
NSG Engineering Requirements
NSG Application Schema (NAS)
Platform Independent Model (adds full UML/OCL structure)
Profiles ISO 19109 & 191xx
Managed in an online Registry
Baselines driven by NEC
Cited in 07-2.0 DISR: Emerging
Platform Specific Models (technology-constrained)
Baselines driven by NAS
Open Web Service Schemas (e.g., GML)
GEOINT Knowledge Base (GKB – RDBMS)
Legacy Mechanisms (e.g., Shapefiles)
Agency Transformation
KPP 6/7 – MSD (G – R – L – S)
GEOINT Architecture/Standards Requirements List

NFDD/NEC/NAS DEVELOPMENT STRATEGY

- **Develop NFDD, NEC and NAS into being the preferred stds for use and extension in new systems, emerging systems and updated legacy heritage systems across the NSG**
- **Develop NFDD, NEC and NAS as comprehensive solutions to support net and data-centric strategies**
- **Continual improvements to meet the evolving requirements of all NSG systems**
- **Within the broad DoD/IC GEOINT community, develop the DD/EC/AS into the single, comprehensive way ahead for the NSG**

Acronyms

AAFIF	Automated Air Facilities Information File
AICM	Aeronautical Information Conceptual Model
AIXM	Aeronautical Information eXchange Model
AML	Additional Military Layers
ASFE	Application Schemas and Feature Encoding
C/JMTK	Commercial Joint Mapping Toolkit
CDM	Conceptual Data Model
DAFIF	Digital Aeronautical Flight Information File
DCS	Data Content Specification
DFEG	Digital Feature Extraction Guide
DFDD	DGIWG Feature Data Dictionary
DGIWG	Digital Geospatial Information Working Group
DISR	DoD Information Technology (IT) Standards Registry
DNC	Digital Nautical Chart
DMR	DoD Metadata Registry
DVOF	Digital Vertical Obstruction File
EG	Extraction Guide
ENC	Electronic Navigation Chart
FACC	Feature and Attribute Coding Catalogue
FDD	Feature Data Dictionary
GEOINT	Geospatial Intelligence
GES	GIG Enterprise Services
GFD	Global Foundation Data
GIFD	Geospatial Intelligence Feature Data
GIG	Global Information Grid
GKB	Geospatial Intelligence Knowledge Base
GML	Geography Markup Language
GNDB	Geographic Names Data Base
GSIP	GEOINT Structure Implementation Profile
GPAS	Geospatial Publicly Available Standards
GWG	GEOINT Standards Working Group
GeoCOI	GEOINT Community of Interest
HLS	Homeland Security
IENC	Inland Electronic Navigation Chart
IHO	International Hydrographic Organization
ISO	International Organization for Standardization
JMBL	Joint METOC Broker Language
JMCDM	Joint METOC Conceptual Data Model
LDM	Logical Data Model
MCG&I	Mapping, Charting, Geodesy and Imagery
METOC	Meteorology and Oceanographic
MGCP	Multinational Geospatial Co-Production
MGID	Military Geographic Information and Documentation
MIDB	Modernized Intelligence Database
MSD	Mission Specific Data
NAS	NSG Application Schema
NCGIS	National Center for Geospatial Intelligence Standards
NCOW	Net-Centric Operations and Warfare
NEC	NSG Entity Catalog
NFDD	NSG Feature Data Dictionary
NSG	National System for Geospatial-Intelligence
OGC	Open Geospatial Consortium
OWS	Open Web Services
PDM	Physical Data Model
RDBMS	Relational Database Management System
S-57	IHO Transfer Standard for Digital Hydrographic Data
SDSFIE	Spatial Data Standard for Facilities, Infrastructure and Environment
SON	Safety of Navigation
TGD	Theater Geospatial Database
TIN	Triangulated Irregular Network
UML	Unified Modeling Language
UP-MSD	Unified Profile of Mission Specific Data
VITD	Vector Interim Terrain Data
VPF	Vector Product Format
WFS	Web Feature Server
WMO	World Meteorological Organization